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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,852	01/04/2002	Michael A. Filipiak	63428-063	6735

26096 7590 07/31/2003

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EXAMINER

VAN PELT, BRADLEY J

ART UNIT

PAPER NUMBER

3682

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,852

Applicant(s)

FILIPIAK ET AL.

Examiner

Bradley J Van Pelt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2, and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen (USPN 5,973,248).

Chen discloses a ball and socket assembly (30) comprising: a socket component including a pair of sockets (331, 341) and a pair of opposed inclined edges (insides of sockets are opposed inclined edges); each of said pair of opposed inclined edges defines an opening for each of said part of sockets; and a ball component (41, 40) received in each of said pair of opposing sockets;

wherein said ball component includes a ball (41) and an arm (40), and said ball is received in said socket to allow for pivotal adjustment of said arm and one of said arm and said ball extends from said opening.

each of said openings expose a portion of each of said balls in each of said pair of opposing socket;

each of said inclined edges are inclined relative to a lower edge and an upper edge of said socket component;

said arm has a range of motion of 90°.

3. Claim 22 is rejected under 35 U.S.C. 102(b) as being anticipated by Herbermann (USPN 5,383,738).

Herbermann discloses a method for supporting an object with a robotic arm (column 2, lines 20-21) comprising the steps of: providing a socket component including a pair of sockets (30) and a pair of opposed inclined edges (30 includes inclined edge and each arm section edge opposes each other); and providing a ball component including an arm (26) and a ball (32) which is received in each of said opposing sockets; pivoting said ball in said socket to allow for pivotal adjustment of said arm; and locking said ball in said socket;

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (USPN 5,973,248).

Chen discloses the claimed invention, except for the balls have a diameter of approximately 1.75 inch and said arms have a diameter of approximately 1.25 inch.

It would have been an obvious matter to change the size of the diameters of the balls and arms, since such a modification would have involved a mere change in size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

6. Claims 4-12, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (USPN 5,973,248) in view of Herbermann (USPN 5,383,738).

Chen discloses the sockets cover more than one half of a surface area of said balls;

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wherein said socket component includes a first clamp half and a second clamp half that are secured together to form said pair of sockets; wherein said first clamp half and said second clamp half are secured together by a pair of bolts (353, 353') located substantially between said pair of sockets; wherein said first clamp half and said second clamp half are secured together by four bolts (333, 333, 333', 333'), one of said bolts being located over one of said sockets, another of said bolts being located under said socket, one of said bolts being located over the other of said sockets and one of said bolts being located under the other of said sockets; further including a gap (see fig. 3) between said first clamp half and second clamp half; wherein each of said pair of inclined edges are inclined approximately 75° (since socket is circular an infinite number of angles occurs in the socket including 75°) from a lower edge of said assembly; said gap is adjustable.

Chen does not disclose said balls are made of a ball material harder than a socket material of said sockets;

said sockets are made of aluminum;

and said balls are serrated.

Herbermann discloses balls made of a material harder than a material of said sockets (see column 2, lines 47-48);

said sockets are made of aluminum (see column 3, lines 63-65);

and said balls are serrated (column 2, lines 58-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ball joint mechanism of Chen by forming the hardness of the balls greater than the hardness of the sockets for the purpose of making the female socket more prone to radial

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deformation, furthermore, so the ball joint will be able to support heavier loads (see column 1, lines 31-37 of Herbermann).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ball joint mechanism of Chen to form the sockets of aluminum for the purpose of lowering the weight of the mechanism; thus improving the efficiency and overall cost of operation of the device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the balls of Chen with serrated surfaces for the purpose of reducing any tendency of slipping between the ball and the socket (see column 2, lines 64-65 of Herbermann).

7. Claims 13-21, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herbermann (USPN 5,383,738) in view of Chen (USPN 5,973,248).

Herbermann discloses a robotic arm (column 2, lines 20-21) comprising: a ball and a socket assembly including a socket component a pair of sockets (30) and a pair of opposed inclined edges (30 includes inclined edge and each robot arm section edge opposes each other), and a pair of ball components (32) each having a ball received in one of said sockets and an arm (26), movement of said ball in said socket allows for pivotal adjustment of said arm; wherein said balls are made of material harder than a material of said sockets (see notes above); wherein said robotic arm includes a plurality of said ball and socket assemblies (see fig. 1); wherein said pair of inclined edges are inclined approximately 75° from a lower edge of said assembly; wherein said balls are serrated (see notes above); wherein each of said openings expose a portion of each of said balls in each of said pair of pair of opposing socket; each of said inclined edges

are inclined relative to a lower edge and an upper edge (middle cylindrical portion is edge) of said socket component; said arm has a range of motion of 90°; said gap is adjustable.

Herbermann does not disclose a socket component having a first clamp half and a second socket clamp secured together; wherein said clamp halves are secured together by a pair of bolts located substantially between said pair of sockets; wherein said clamp halves are secured together by four bolts, one of being located over one of said sockets, another of said bolts being located under said socket, one of said bolts being located over the other of said sockets, and one of said bolts being located under the other of said sockets; a gap between halves; and

wherein said balls have a diameter of approximately 1.75 inches and said arms have a diameter of approximately 1.25 inches;

Chen disclose a socket component having a first socket half and a second socket half secured together; wherein said clamp halves are secured together by a pair of bolts located substantially between said pair of sockets; wherein said clamp halves are secured together by four bolts, one of being located over one of said sockets, another of said bolts being located under said socket, one of said bolts being located over the other of said sockets, and one of said bolts being located under the other of said sockets; and a gap between first clamp half and said second clamp half (see notes above).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the robotic arm of Herbermann with first and second halves in combination with bolts for the purpose of having a non-permanent structure; subsequently, increasing the maintenanceability of the robot arm.

It would have been an obvious matter to change the size of the diameters of the balls and arms, since such a modification would have involved a mere change in size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

Response to Arguments

8. Applicant's arguments filed June 26, 2003 have been fully considered but they are not persuasive.

Applicant argues that Chen (USPN 5,973,248) does not disclose a pair of inclined edges that each define an opening for a socket, as required by claims 1, 2, 6-11. Chen, however, discloses a clamp mechanism, which encircles and is formed around a socket, further locking the socket into various positions. Since, the clamp encircles the socket, it is formed with inclined edges that each define an opening for a socket; thus, Chen anticipates the above limitation.

Applicant argues Herbermann does not disclose a method for supporting an object including the step of providing a socket component including a pair of sockets, as required by claim 22. Applicant admits that Herbermann discloses a *plurality* of ball joined links 26, each link 32 includes a female socket at one end and a male ball 32 at an opposing end. Since, Herbermann discloses a plurality of ball joined links, two of the ball joined links provide a pair of sockets; thus, Herbermann anticipates all of claim 22.

Applicant argues, in regards to claim 3, there is no suggestion in Chen to include ball and arms having the diameter as claimed, and certainly not the relative sizes. The examiner agrees that Chen does not suggest the claimed diameter; however, a change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Applicant argues the rejection of claims 4-12, should not be rejected under U.S.C. 103(a), but has not provided any flaws in the combination.

Applicant asserts, in claims 13-21, the combination does not teach or suggest a pair of sockets; however, the base reference Herbermann provides the pair of sockets, as discussed above. Subsequently, the combination provides all of the limitations of claims 13-21.

Conclusion

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley J Van Pelt whose telephone number is (703)305-8176.

The examiner can normally be reached on M-Th 7:00-4:30, 2nd F 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703)308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-7687 for regular communications and (703)305-3597 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-2168.

BJVP *BJVP*
July 15, 2003

[Signature] 7/15/03
DAVID A. BUCCI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600